Dr Robert Q. Fugate Receives DoD Distinguished Civilian Service Award

Payoff

Dr. Robert Q. Fugate's major technological breakthroughs have led to the development of methods to compensate for the degrading effects of atmospheric turbulence on optical propagation. His work refined techniques for the operation of adaptive optics using a focused laser beacon for high-efficiency laser propagation through the atmosphere. Laser beacon adaptive optics is the key technology needed for viable laser weapons and also enables real-time, highly resolved imaging of space objects.

Accomplishment

Dr. Robert Q. Fugate, senior scientist at the Directed Energy Directorate, was awarded the Decoration for Exceptional Civilian Service Award for pioneering work in laser guidestar adaptive optics. Dr. Fugate was nominated for this award, which is the highest in the DoD, by Ms. Sheila E. Widnall, former Secretary of the Air Force.

Background

Dr. Fugate's early adaptive optics experiments, beginning in 1982, provided resources to establish a world class optical propagation facility at the Directorate's Starfire Optical Range (SOR) based on a 1.5-m telescope/beam director. In 1988, he directed the first closed-loop operation of an adaptive optics system, and in 1989, he used the same methods to produce compensated images of astronomical bodies. Since that time, Dr. Fugate has further refined his atmospheric compensation methods, demonstrating solutions to beam control issues for the Air Force Ground-Based Laser Technology Program. Recent accomplishments include development and operation of a 941 actuator adaptive optics system on the SOR 3.5-m telescope. This system has achieved diffraction limited performance on astronomical objects and will support DoD requirements in the areas of laser propagation, space imaging, pointing and tracking, and other high priority projects. Spectacular results have already been achieved in imaging earth-orbiting satellites.